## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

### (19) World Intellectual Property Organization

International Bureau



# 

#### (43) International Publication Date 14 July 2005 (14.07.2005)

#### **PCT**

## (10) International Publication Number WO 2005/064800 A1

(51) International Patent Classification7: H03M 13/29, 13/45

(21) International Application Number:

PCT/IB2004/052709

- (22) International Filing Date: 8 December 2004 (08.12.2004)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 03104923.2

22 December 2003 (22.12.2003)

- (71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): HEKSTRA, Andries, P. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). DIELISSEN, Johannus, T., M., H. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agents: ELEVELD, Koop, J. et al.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

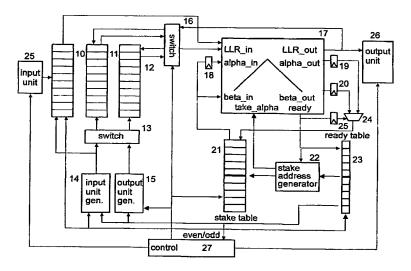
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN. CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH. GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Declaration under Rule 4.17:

as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,

[Continued on next page]

(54) Title: SISO DECODER WITH SUB-BLOCK PROCESSING AND SUB-BLOCK BASED STOPPING CRITERION



(57) Abstract: The present invention relates to SISO decoder for iteratively decoding a block of received information symbols (r), in particular for use in a turbo decoder, said block being divided into a number of windows of information symbols. In order to achieve a significant reduction of power consumption a SISO decoder is proposed comprising at least one SISO decoding unit (17, 21) for SISO decoding of the received information symbols (r) of a window, wherein a stopping criterion is applied to each window. This allows to abort iterative decoding for each window individually once convergence of decoding is determined by marking a window or sub-block inactive (17,23). An inactive window is no longer SISO decoded in subsequent iterations.



# WO 2005/064800 A1



JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

#### Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.